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 TITLE: Kit for engraving marks on vehicle window - comprises
 ball-ended engraving tool with embedded diamond chips,
stencil and adhesive stencil guide
 INVENTOR: TAMMADGE, S
 PATENT-ASSIGNEE: TAMMADGE S[TAMMI]
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 ABSTRACTED-PUB-NO: GB 2125340A
 BASIC-ABSTRACT:
 The kit for engraving identifying marks, partic. on vehicle windows, comprises
 an engraving tool (6) having a ball-end with a number of diamond chips embedded
 in it. A stencil (5) is provided, having apertures corresp. to letters of the
 alphabet and numerals.
 The width of the apertures is a clearance fit with the cross-section of the
 portion of the tip which is adapted to perform the cutting action. An adhesive
 guide member (1) guides the stencil. The stencil and guide have complementary
 bevelled edges to urge the stencil against the surface to be marked.
 CHOSEN-DRAWING: Dwg.2/5
 TITLE-TERMS: KIT ENGRAVING MARK VEHICLE WINDOW COMPRISE BALL END ENGRAVING TOOL
EMBED DIAMOND CHIP STENCIL ADHESIVE STENCIL GUIDE
 DERWENT-CLASS: P78
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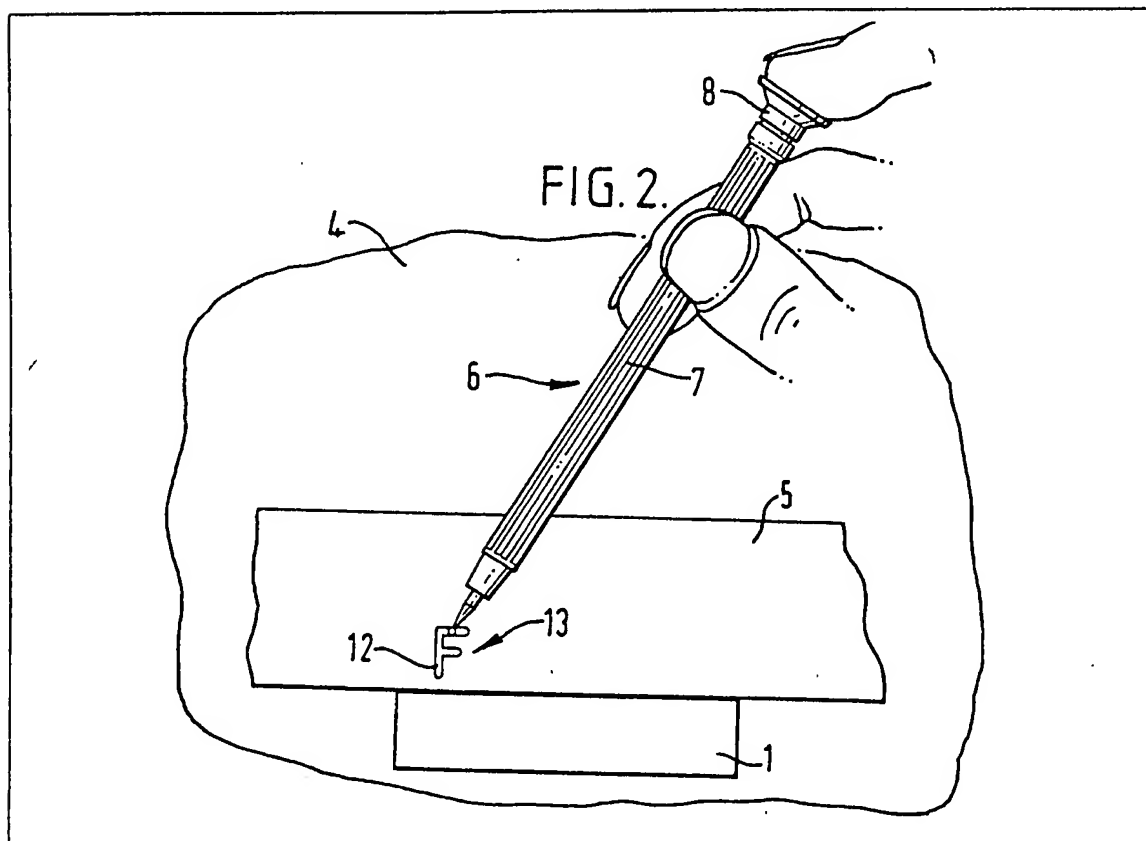
(71) Applicant
Stephen Tammadge,
23 Beehive Road, Goffs
Oak, Waltham Cross,
Hertfordshire ENJ 5NL
(72) Inventor
Stephen Tammadge

(74) Agent and/or Address for
Service
W. H. Beck Greener and
Co, 7 Stone Buildings,
Lincoln's Inn,
London WC2A 3SZ

(54) Engraving method and
apparatus

(57) A kit for engraving identifying
marks, particularly for engraving
identifying marks on vehicle windows,

comprises an engraving tool 6 having
a ball-end with a plurality of diamond
chips embedded therein, a stencil 5
having apertures corresponding to
letters of the alphabet and numerals,
the width of the apertures being a
clearance fit with the cross-section of
the portion of the tip which is adapted
to perform the cutting action, and an
adhesive guide member 1 to guide the
stencil. The stencil and guide have
complementary bevelled edges to
urge the stencil against the surface to
be marked.



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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

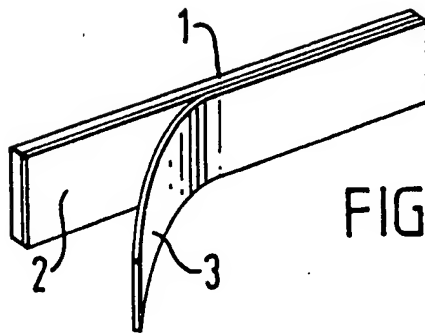


FIG. 1.

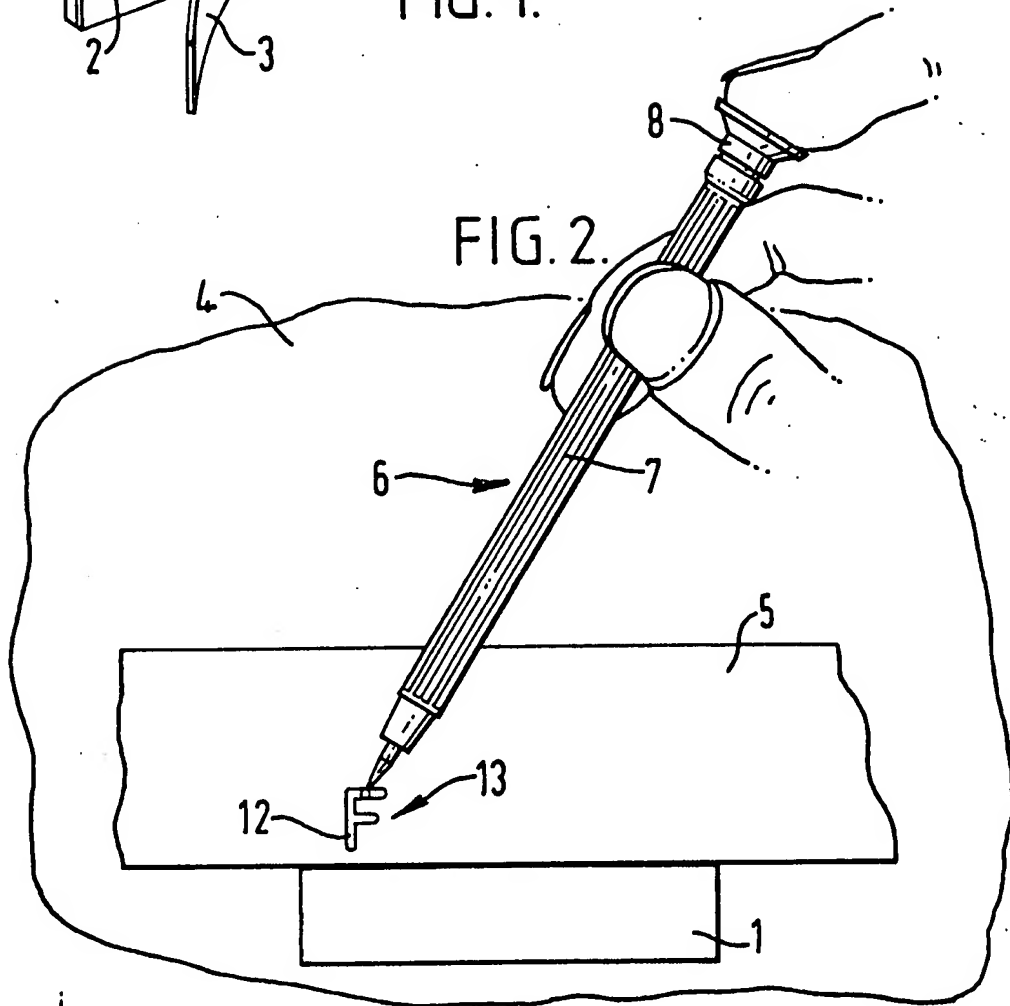


FIG. 2.

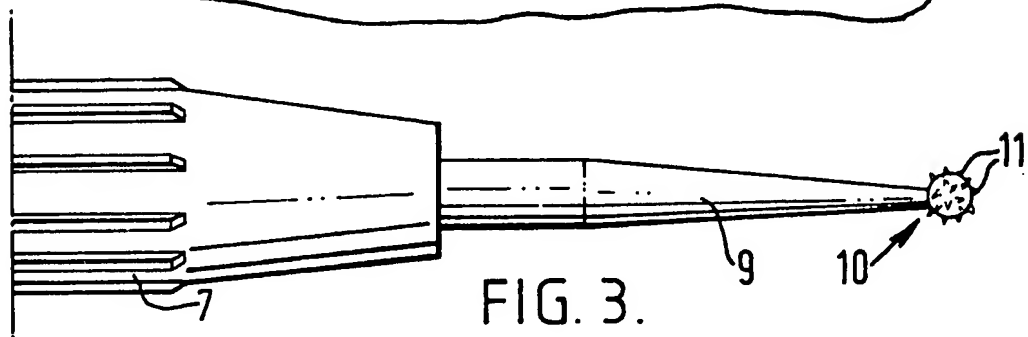


FIG. 3.

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FIG. 4.

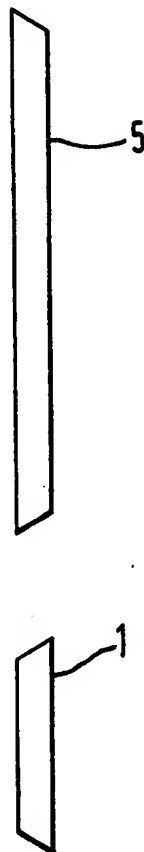


FIG. 5.

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SPECIFICATION Engraving method and apparatus

This invention relates to the engraving, by hand, of surfaces of materials and particularly of glass such as windows of vehicles.

According to a first aspect of the invention, a tool for use in manually engraving a surface comprises an elongate stem having a tip which terminates at its free end in a surface or portion having one or more cutting elements, for example abrasive elements, the or each cutting element being of a suitably harder material than that of the material to be engraved, and the stem being adapted to be rotated with the fingers to cause the tip to mark the surface of a material against which it is pressed.

The tip may have a single cutting element protruding from it, e.g. a chip of diamond or similar material, the cutting element being embedded in or cemented to the end of the tip.

In another and preferred form, the tip terminates in an at least partially curved end, preferably a ball-end, in the surface of which there are embedded a considerable number of abrasive elements, such as diamond chips or equivalent.

The tip of the tool may be an elongation of, but thinner than, the stem, and may reduce in cross-section for at least part of its length towards its free end. Conveniently, the tip is a metal body which is embedded in a stem made of a mouldable plastics material. The stem may advantageously be provided with knurling or longitudinal spines or other relief formation for providing a better grip.

In a preferred form of construction the stem comprises at its other end a freely rotatable captive member which can serve as a finger or palm rest for holding the stem by the hand whilst applying the requisite pressure to carry out the engraving operation.

According to another aspect of the invention, there is provided, a kit for engraving identifying marks, particularly for engraving identifying marks on vehicle windows, which kit comprises an engraving tool having a cutting tip for example an abrasive tip, a stencil having apertures corresponding to a number of different characters in particular letters of the alphabet and/or numerals, the width of the apertures being a clearance fit with the cross-section of the portion of the tip which is adapted to perform the cutting action. In particular, where the tip has a ball-end as set forth above, the width of the apertures is a clearance fit to receive the diameter of the ball-end. Thus, for use in engraving of a surface, the invention provides a tool having a ball-end with abrasive elements projecting from it, and a stencil having apertures which receive that ball-end with only very small clearance. Further, at the end of elongate aperture portions of the stencil, and/or the portions of the stencil where one aperture portion joins another, the radius of curvature of the surface bounding the aperture is preferably made to correspond to that of the ball-end.

According to a still further aspect of the invention there is provided a kit of parts comprising the combination with an engraving tool and a stencil as set forth hereinabove, of a guiding member having a guide surface to be abutted by a surface of the stencil such that the stencil may be slid along the guiding member. The guide member is provided with means for securing it temporarily and releasably to the surface to be engraved, and in a preferred form has one or more areas covered with an adhesive suitable for holding the guiding member in place on the surface to be engraved. A preferred construction of guide member is a flat strip or flexible material having adhesive on one face, and for convenience of use and storage the adhesive surface or layer may be initially covered by a tear-off backing strip, such as silicone paper or the like.

According to the invention a method of engraving a character on a surface, such as the surface of a window of a vehicle, comprises the steps of placing a guiding member in contact with the surface to be engraved at a position adjacent to where engraving is to be performed, causing the guiding member to adhere to the surface, placing a stencil in abutment with the guiding member and if necessary moving the stencil guided by the guiding member to a required position of a character of the stencil relative to the surface, introducing an engraving tool through an opening of the stencil appertaining to the character to be engraved and bringing the tool into contact with the surface, manipulating the tool to engrave the surface in the shape of the character, withdrawing the tool from the stencil, removing the stencil from the surface, and removing the guiding member from the surface. Where more than one character is to be engraved, the same operations of introducing the tool and engraving and removing the tool are carried out for each character, and the stencil is, if necessary, moved in guided manner relative to the guiding member and/or reversed or inverted.

A preferred embodiment of apparatus and its method of use in accordance with the invention will now be described with reference to the accompanying drawings, in which:

Fig. 1 is a perspective elevation of a guide strip;
Fig. 2 is a perspective elevation of part of a glass structure, such as a vehicle window, to show the manner of use of a guide strip, stencil and engraving tool;

Fig. 3 is an elevation, to a much enlarged scale, of part of the engraving tool;

Fig. 4 is a schematic end elevation showing a stencil and guide strip as shown in Fig. 2; and

Fig. 5 is a plan view of a stencil according to the invention.

The guide strip shown in Fig. 1 is a strip 1 of resiliently flexible material, such as a plastics material, on one face of which is provided an adhesive layer 2 normally covered by a backing strip 3 of silicone paper or equivalent material.

Referring to Fig. 2, there is shown a portion 4 of the glass of a window of a vehicle.

The backing strip 3 is peeled off the guide strip 1 and the strip is then placed at a suitable clean and dry position on the window, below the position at which the engraved impression is to be made, and is pressed firmly into position to ensure that it sticks by virtue of its adhesive layer 2.

A stencil 5 is then placed in contact with a longitudinal edge of the guide strip 1 so as to be readily movable in a straight line, guided by the strip 1, for making a series of characters, such as letters and/or numbers, on the glass 4.

A tool 6 is provided to coact with the stencil 5 in the formation of the desired characters. The tool 6 has a handle 7 with a freely rotatable captive portion 8, which may be used as a finger rest button, at one end. At the other end the tool has a metal stem 9 which terminates in a ball-end 10 having a large number of particles of diamond chips 11 or other equivalent abrasive material protruding from it.

The stencil 5 has, for example, letters of the alphabet and numerals formed in it as apertures 12 through which the ball-end 10 of the tool can be introduced to contact the glass surface 4. The width of the apertures 12 is such that it corresponds to a clearance fit for the ball-end 10 of the tool, and the ends 13 of the portions of aperture 12 are made of a radius closely corresponding to that of the ball-end 10.

Because marks made by an abrasive tool on glass cannot be removed, and thus mistakes cannot be later rectified, it is important that the stencil is designed in such a way as to allow the minimum scope for error by the user. For this reason, it is preferred that the shapes in the stencil corresponding to "hollow" letters of the alphabet such as "D, O, P, F and R", are formed in two parts as shown in Fig. 5 such that must be slid between two adjacent positions to form the letters, and the abrasive tool is at all times guided by the stencil.

The stencil is formed of transparent material to facilitate the accurate location of both the different parts of single letters, and the different letters themselves.

The upper surface of the guide strip and each of the opposite edges of the stencil are bevelled so as to retain the lower edge of the stencil in position against the window, as illustrated in Fig. 4.

Both of the opposed rows of characters of the stencil are accurately spaced by the same distance from the respective opposite bevelled edge to ensure accurate alignment when the stencil is inverted.

In use, the stencil 5 is held manually against the glass 4, and positioned by sliding the stencil along the strip 1. The ball-end 10 of the tool is introduced through the aperture 12 of the desired letter or numeral. The stem 7 may then be rotated between the thumb and second finger of the hand, whilst the first finger rests on the stationary button 8 to apply axial pressure, as shown in Fig. 2. Alternatively, the button 8 may be placed against the palm of the hand, and the stem 7 rotated between the thumb and first finger.

However, in a preferred method of use, the engraving tool may be simply held somewhat as a writing pen is held, and the glass surface stroked lightly to achieve the desired effect. Only light pressure is required, similar to writing with a ball-point pen, and a scribbling action for, say, about 15 seconds will normally be sufficient. The tool should preferably be turned occasionally to prevent clogging.

When a first letter or numeral has been engraved into the glass surface 4, the stencil is then slid along the guide strip 1, and inverted if necessary, until the next desired letter or numeral has its aperture 12 correctly position, and the use of the engraving tool 6 is repeated. When all of the necessary characters have been engraved in the glass surface 4, the stencil 5 is lifted away, and the guide strip 1 pulled away and unstuck from the glass, and can be re-used where necessary.

The use of the ball tip is particularly advantageous since it allows the tool to be held at any angle to the glass and the same result obtained. A flat tip would have to be held at right angles and there would still be the chance of one side cutting deeper than the other. A pointed tip would result in several lines unless a constant angle was maintained, which is impractical.

Furthermore, the concave engraving obtained with the ball tip is far less likely to start a fissure than a pointed tip, even when used to excess. The abrasive particles simultaneously engrave several lines which merge into one as the etching progresses, therefore engraving a wider stroke and neater looking character without excessive depth which could weaken the glass.

As an alternative to the preferred diamond grit-coated ball, however, a tungsten carbide or silicon carbide tool having a pointed or cone-shaped end may be utilised.

105 CLAIMS

1. A kit for engraving identifying marks, which kit comprises an engraving tool having a cutting tip, a stencil having apertures corresponding to a number of different characters, the width of the apertures being a clearance fit with the cross-section of the portion of the tip which is adapted to perform the cutting action.

2. A kit as claimed in claim 1, wherein the cutting tip has a ball-end having a plurality of abrasive elements embedded therein.

3. A kit as claimed in claim 2, wherein the width of the apertures is a clearance fit to receive the diameter of the ball-end.

4. A kit as claimed in claim 2 or claim 3, wherein at the end of elongate aperture portions of the stencil, and/or portions of the stencil where one aperture portion joins another, the radius of curvature of the surface bounding the aperture corresponds to that of the ball-end.

5. A kit as claimed in any one of the preceding claims, which also comprises a guide member for the stencil, means being provided for securing the guide member temporarily and releasably to the

surface to be engraved.

6. A kit as claimed in claim 5, wherein the guide member is a flat strip or flexible material having adhesive on one face, covered by a tear-off backing strip.

7. A kit as claimed in claim 5 or claim 6, wherein the stencil and the guide member are each provided with a bevelled edge to urge the stencil towards the article to be engraved during the engraving process.

8. A kit as claimed in any one of the preceding claims, wherein the engraving tool comprises an elongate stem having a freely rotatable captive member at an end thereof distant from the cutting tip, for applying pressure to the tool during an engraving operation.

9. A kit as claimed in claim 8, wherein the engraving tool is substantially as hereinbefore described with reference to Figs. 2 and 3 of the accompanying drawings.

10. A kit for engraving identifying marks, comprising an engraving tool having a cutting tip, a stencil having apertures corresponding to a number of different characters, and a guide member in the form of a flat strip having adhesive on one side of its faces, the stencil and the guide member each being provided with a bevelled edge

for urging the stencil towards an article to be engraved in use.

11. A kit for engraving identifying marks, substantially as hereinbefore described with reference to, and as illustrated by the accompanying drawings.

12. A method of engraving a character on a surface, which method comprises placing a guiding member in contact with the surface to be engraved at a position adjacent to where engraving is to be performed, causing the guiding member to adhere to the surface, placing a stencil

in abutment with the guiding member with a desired character of the stencil in the required position relative to the surface, introducing an engraving tool through an opening of the stencil appertaining to the character to be engraved and

bringing the tool into contact with the surface, manipulating the tool to engrave the surface in the shape of the character, withdrawing the tool from the stencil, removing the stencil from the surface, and removing the guiding member from the surface.

13. A method of engraving a character on a surface substantially as hereinbefore described with reference to and as illustrated by the accompanying drawings.